

Delta Operations for Salmonids and Sturgeon (DOSS) Working Group



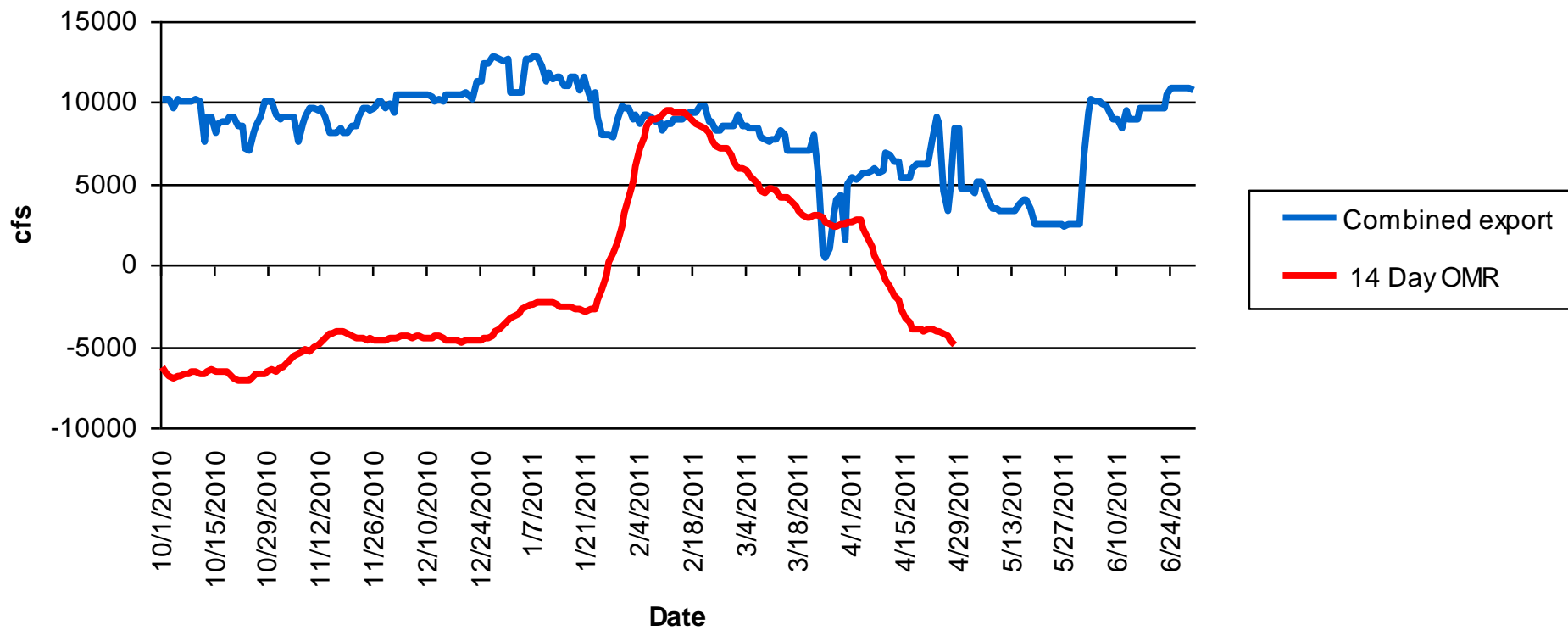
for
Independent Review Panel
11-8-11
by Bruce Oppenheim, NMFS
and Thuy Washburn, USBR

Main issues in WY 2011

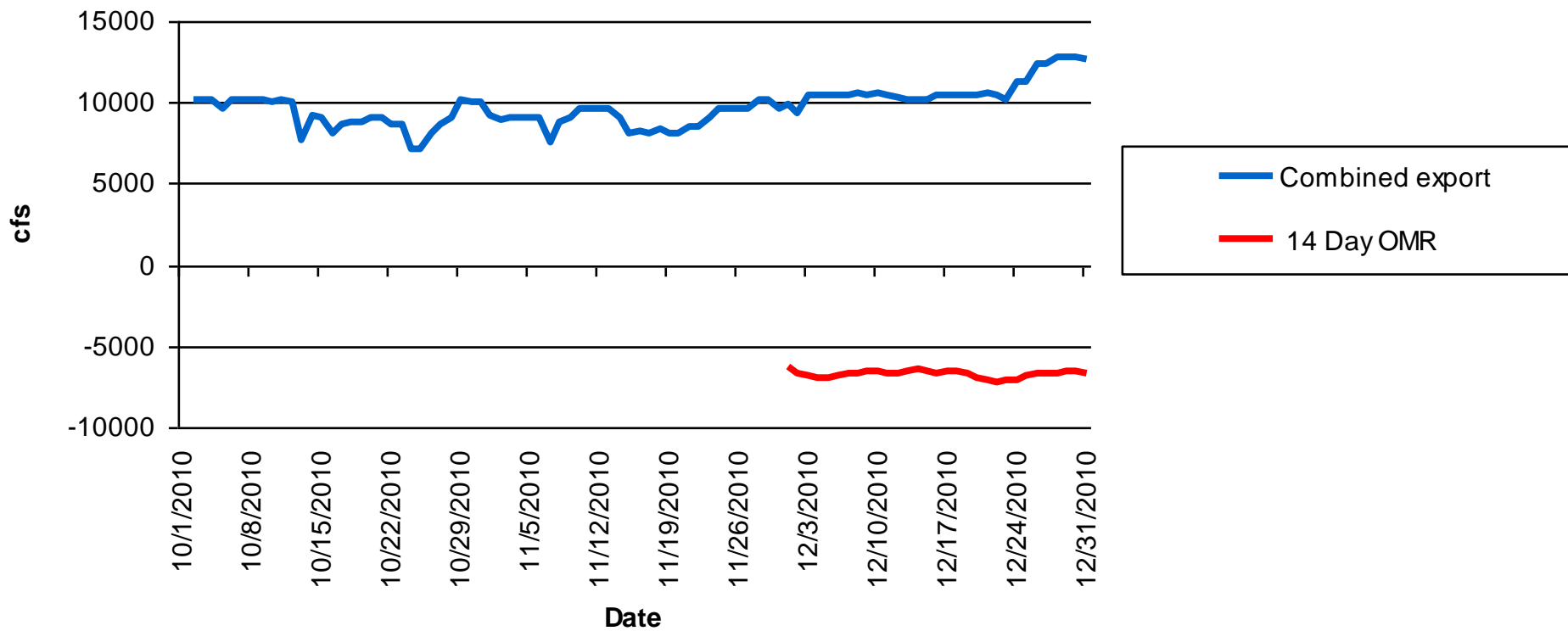
- Delta Cross Channel gate operations
- Old and Middle River (OMR) flow
- San Joaquin R inflow-to-export ratio (I:E)
- Green sturgeon status and identification

Overview of water year

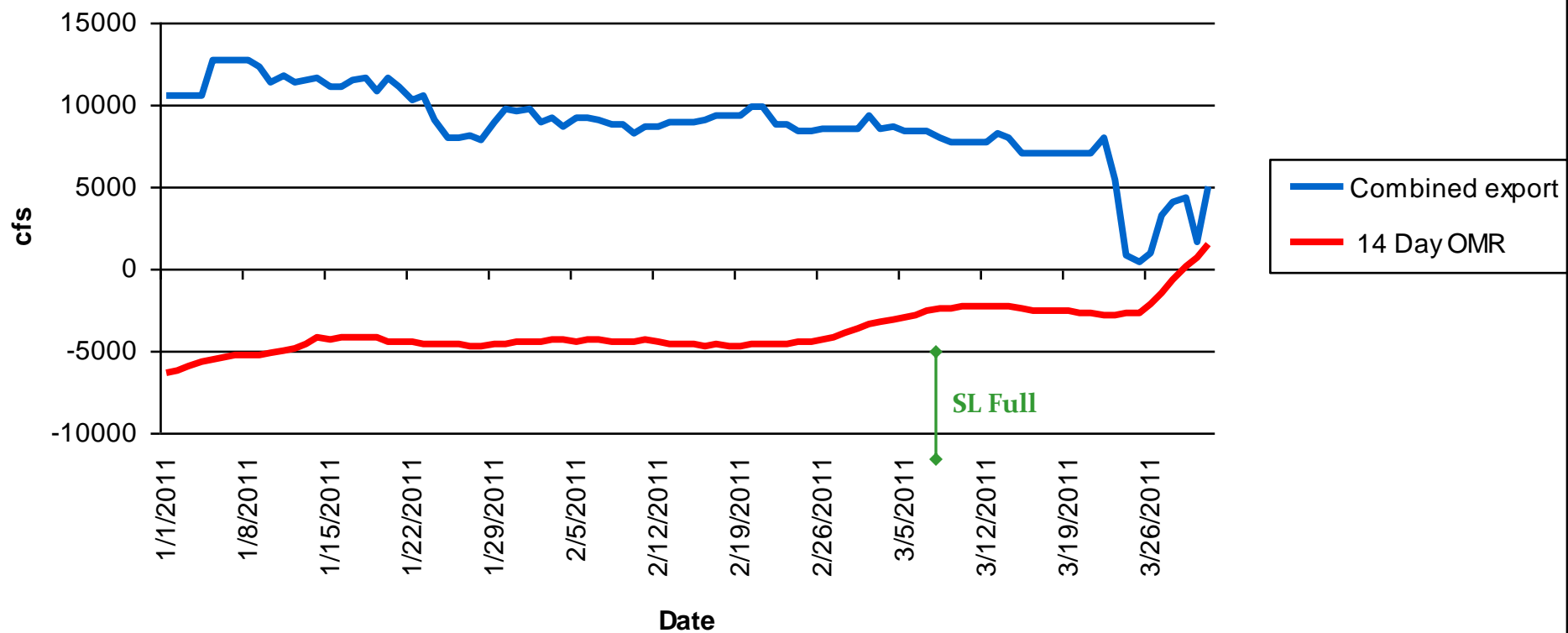
WY 2011 Delta Operations Oct - June



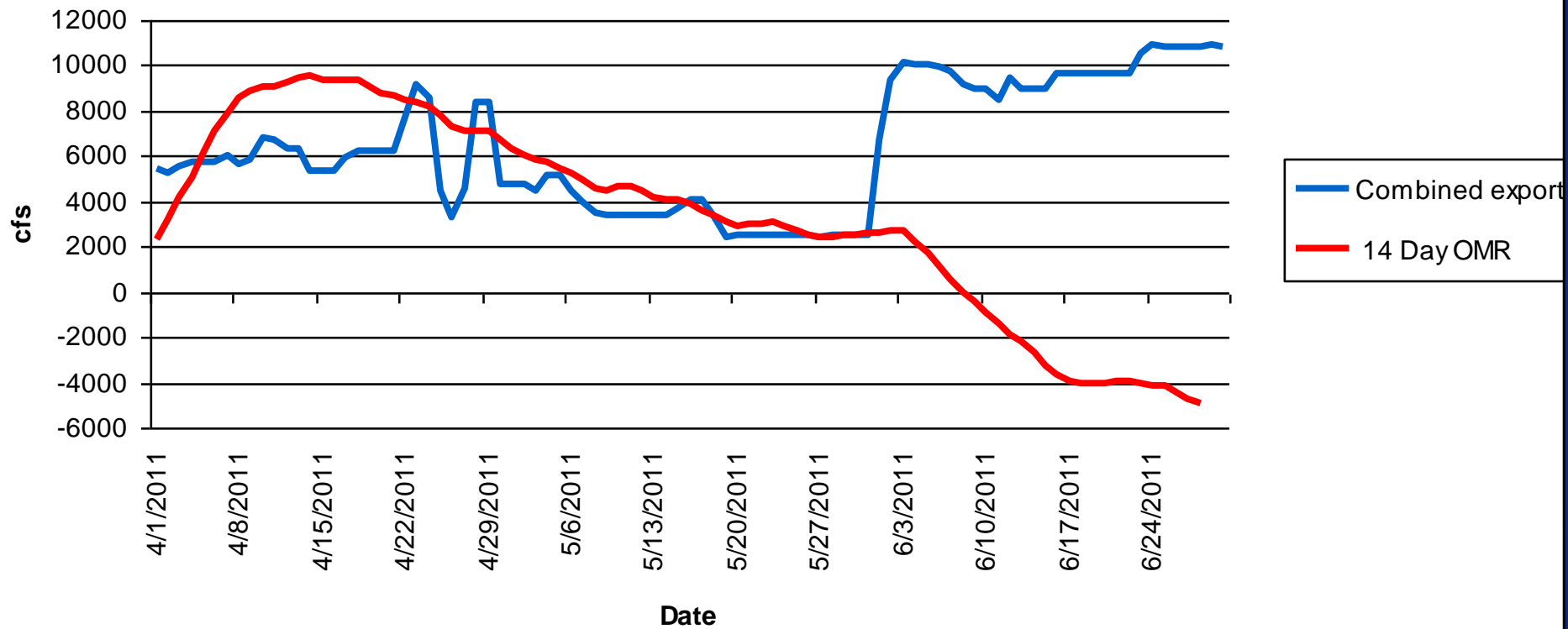
WY 2011 Delta Operations Oct - Dec



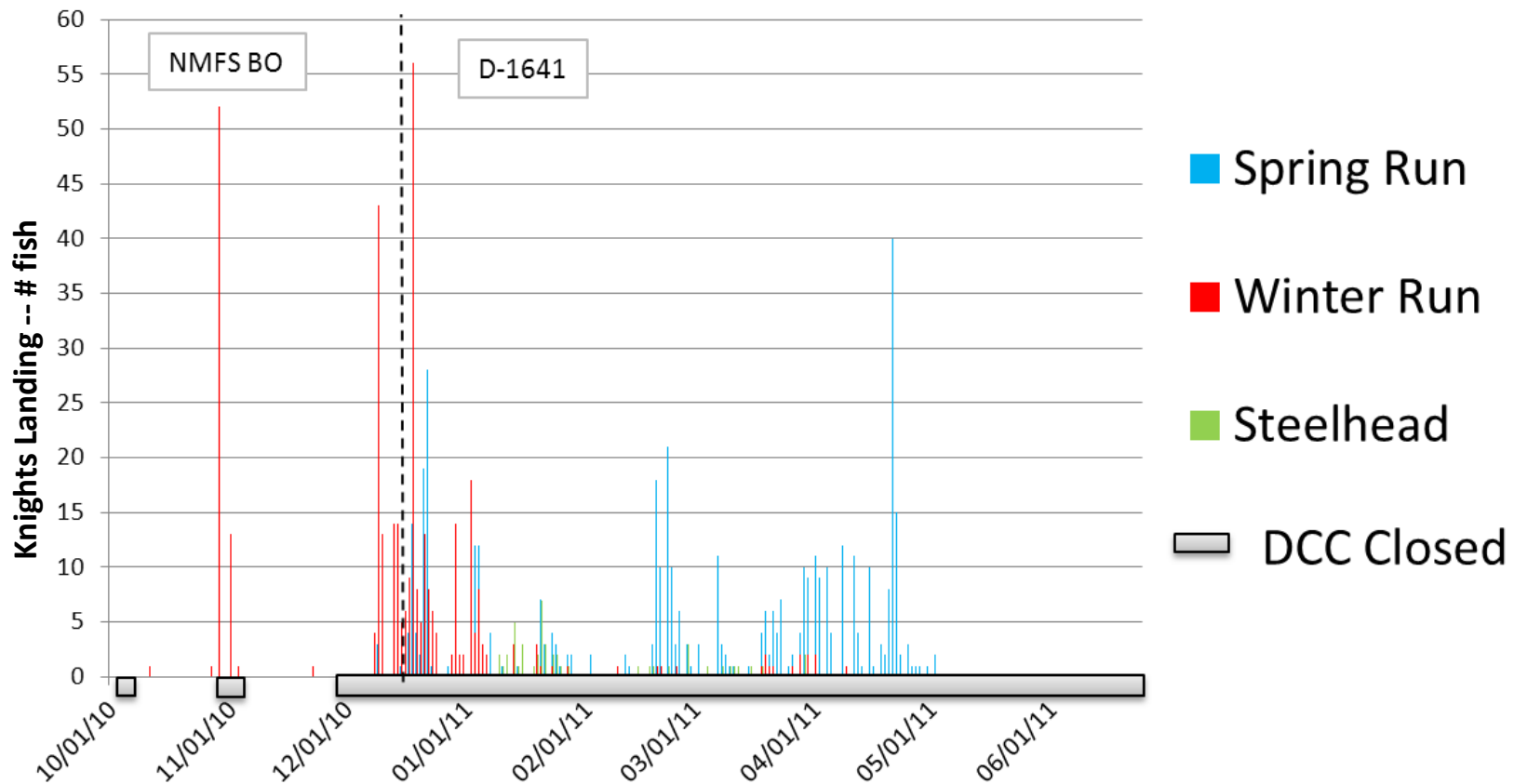
WY 2011 Delta Operations Jan - Mar



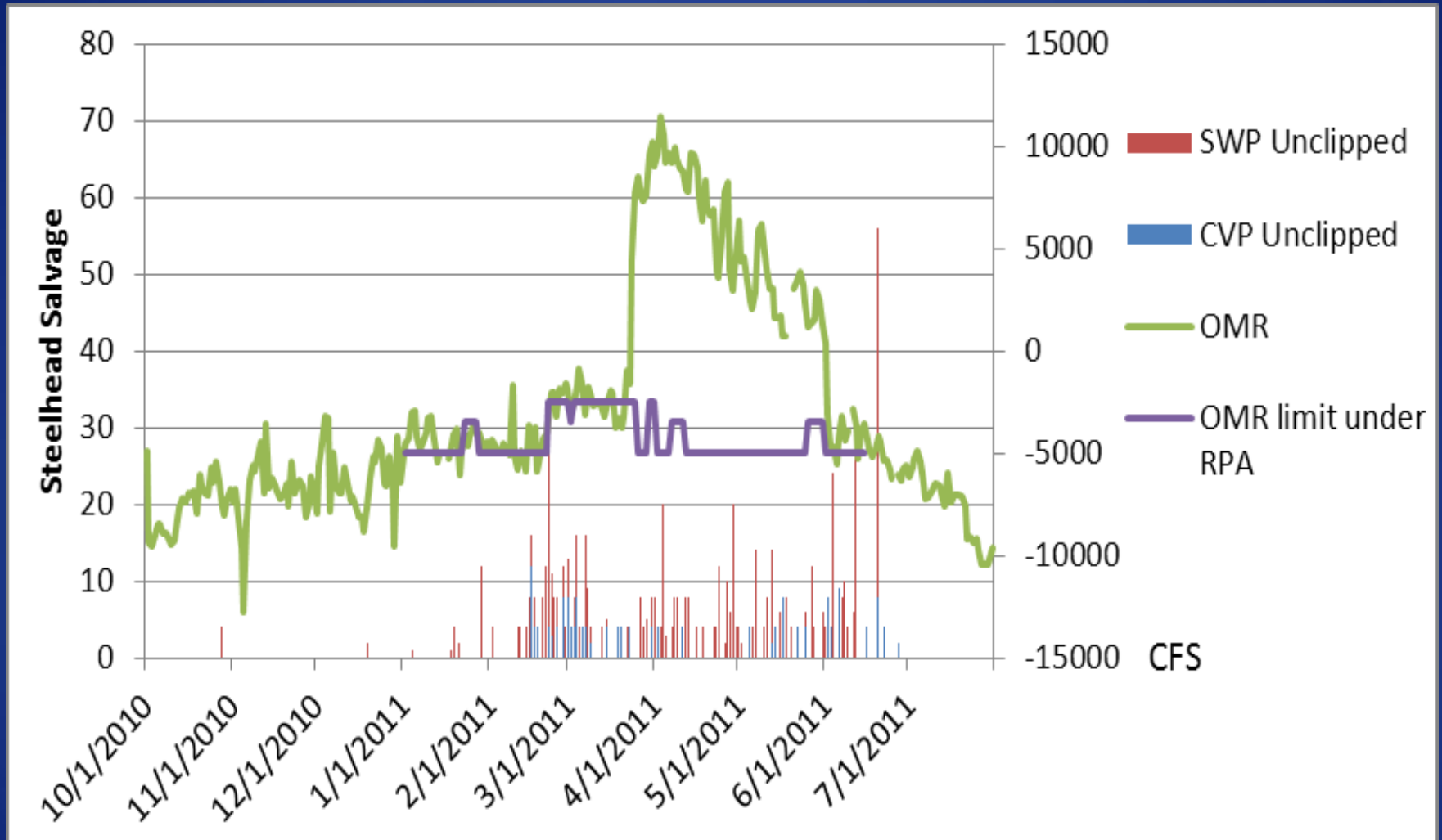
WY 2011 Delta Operations April - June



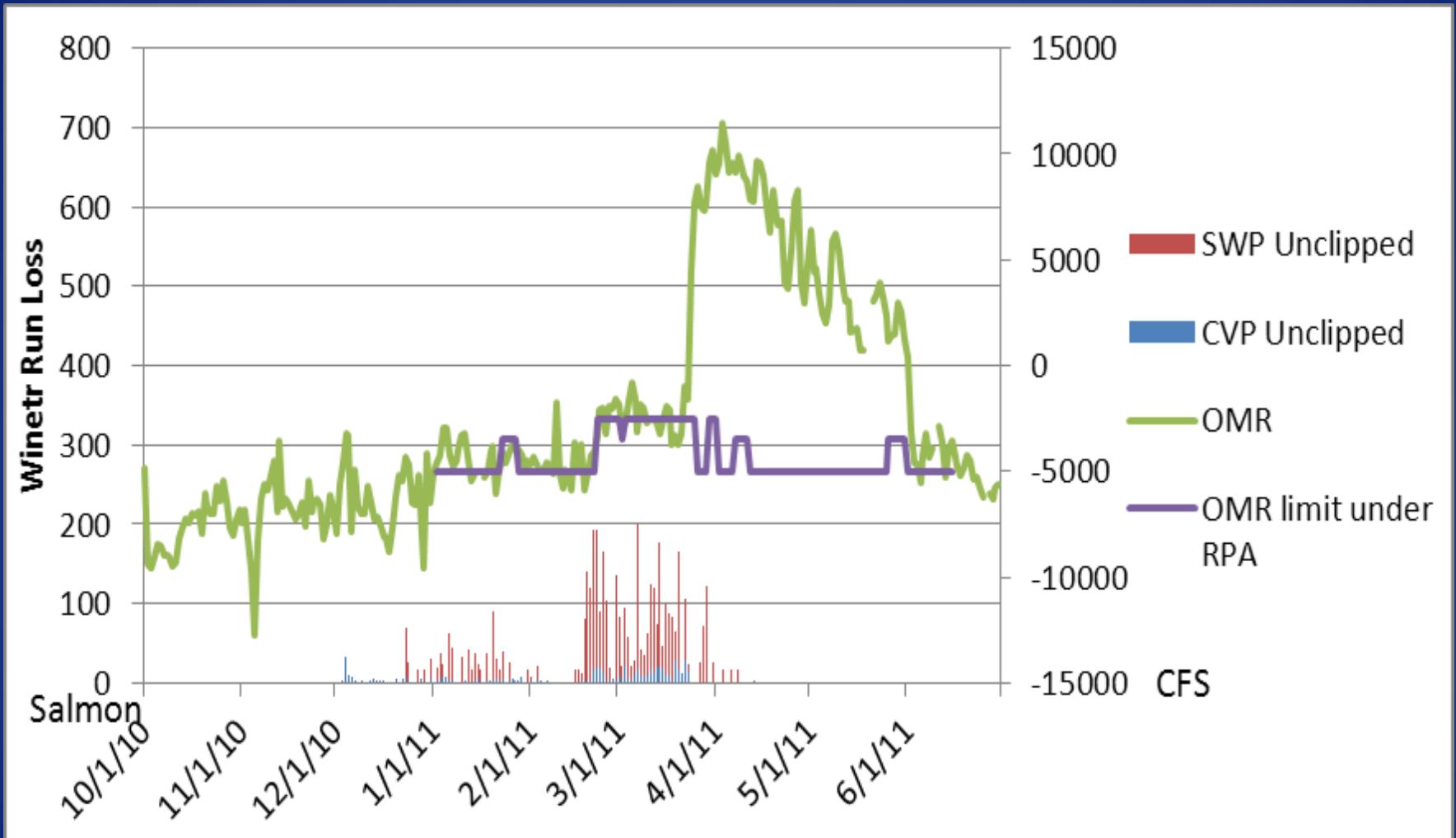
DCC gate operations



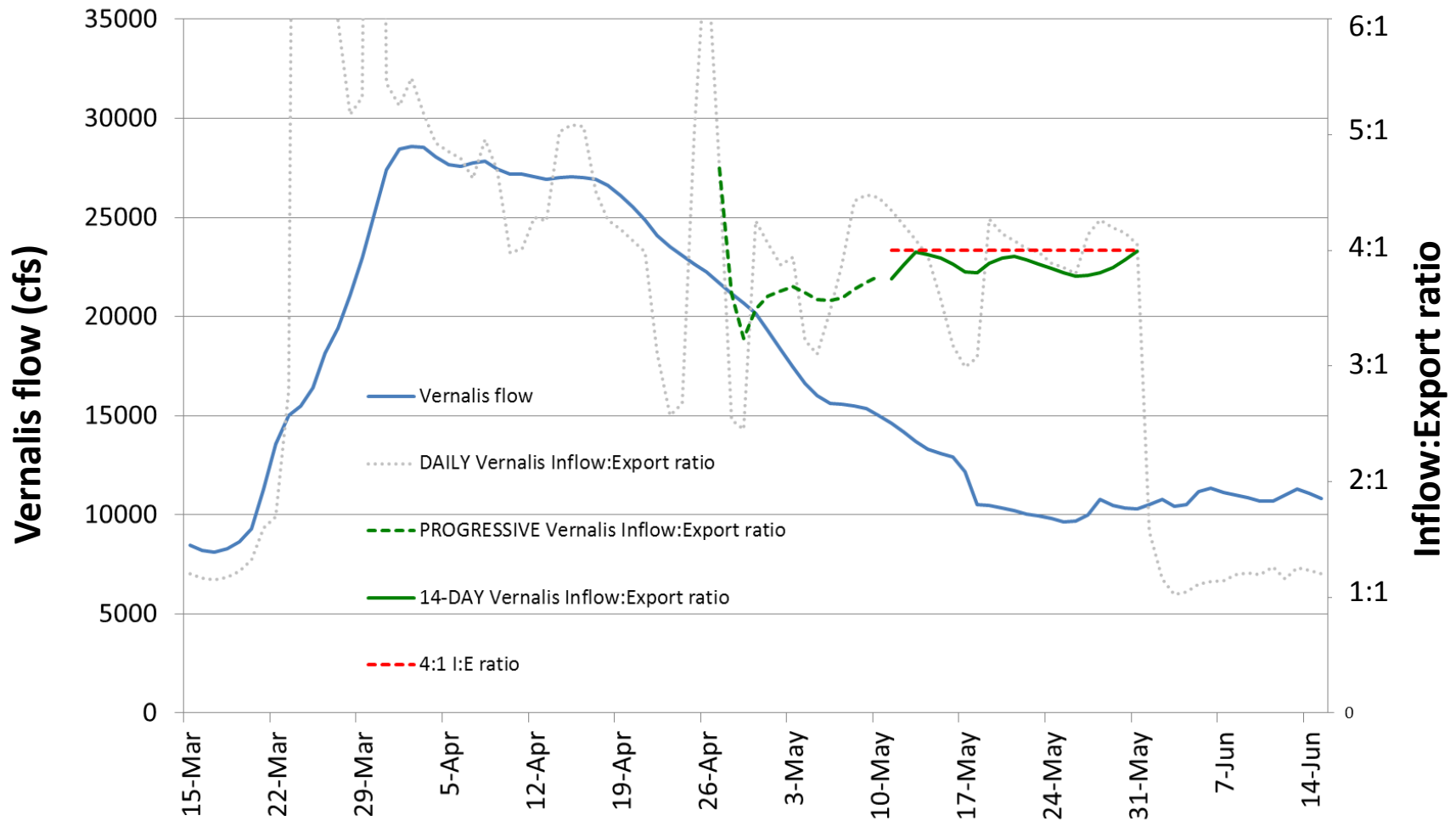
OMR vs steelhead salvage






OMR vs older juvenile salmon loss



San Joaquin River inflow-to-export (I:E)Ratio

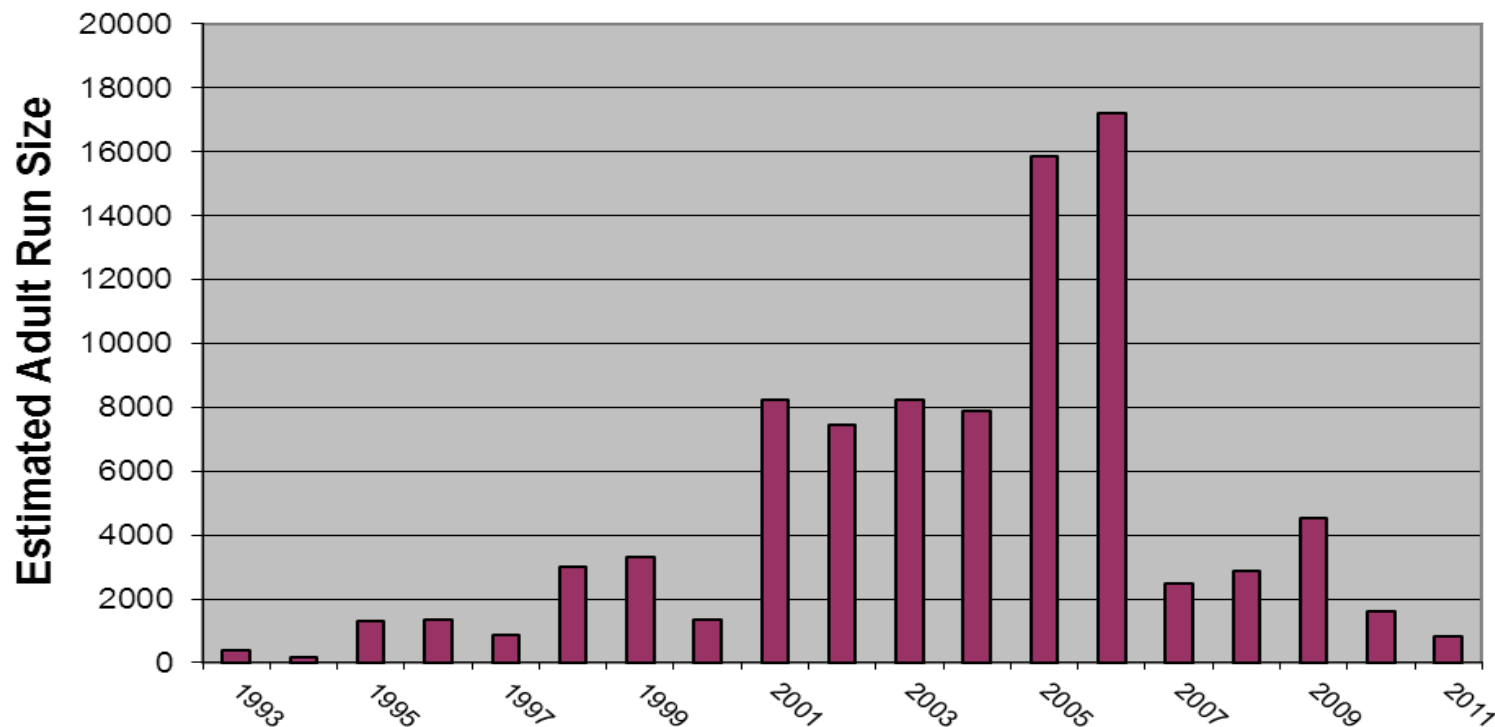


2011 salvage response

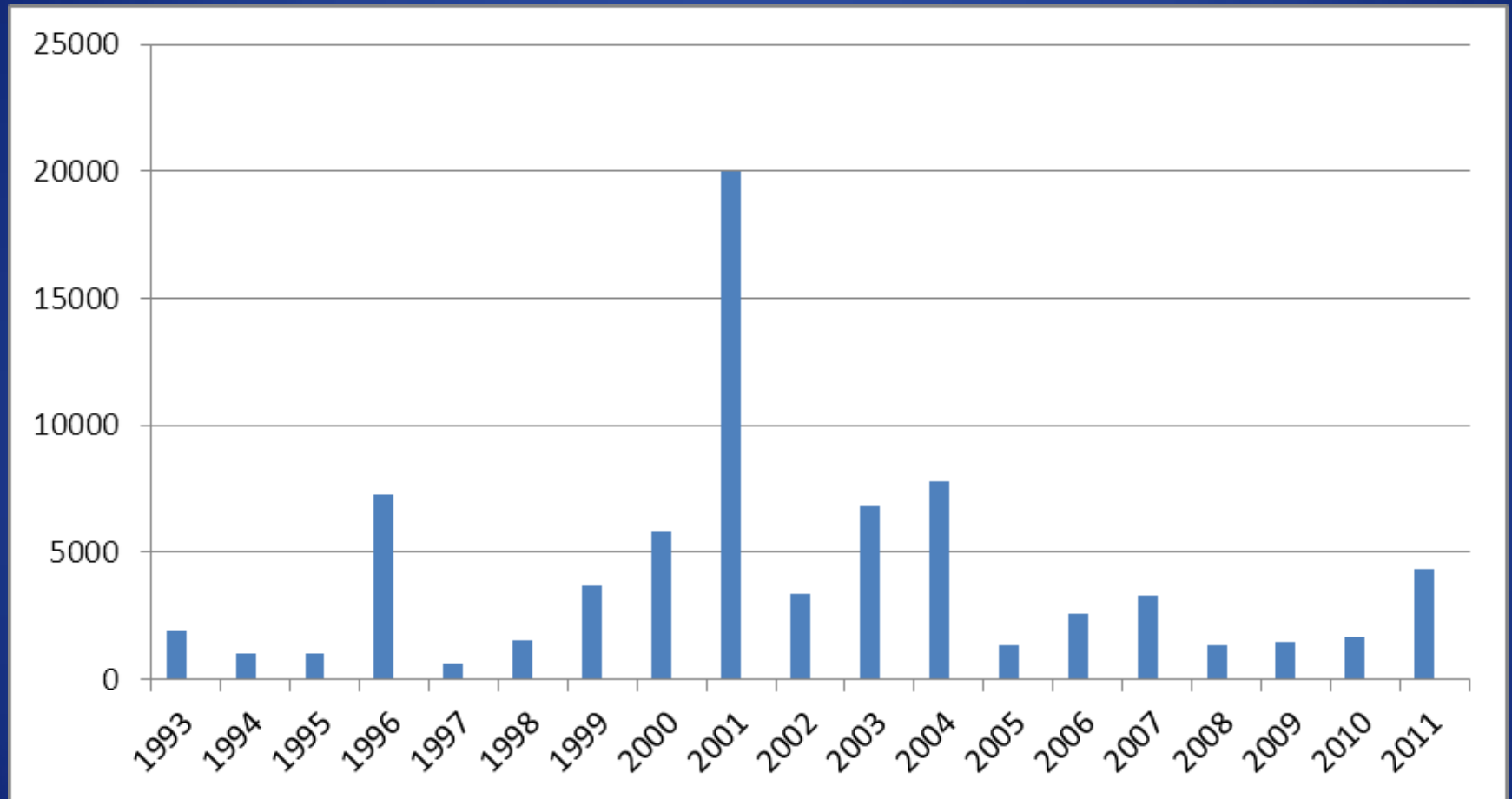
- winter-run loss compared to 2010 
- steelhead salvage compared to 2010 
- green sturgeon salvage  compared to 2010

Winter-run declined since 2009

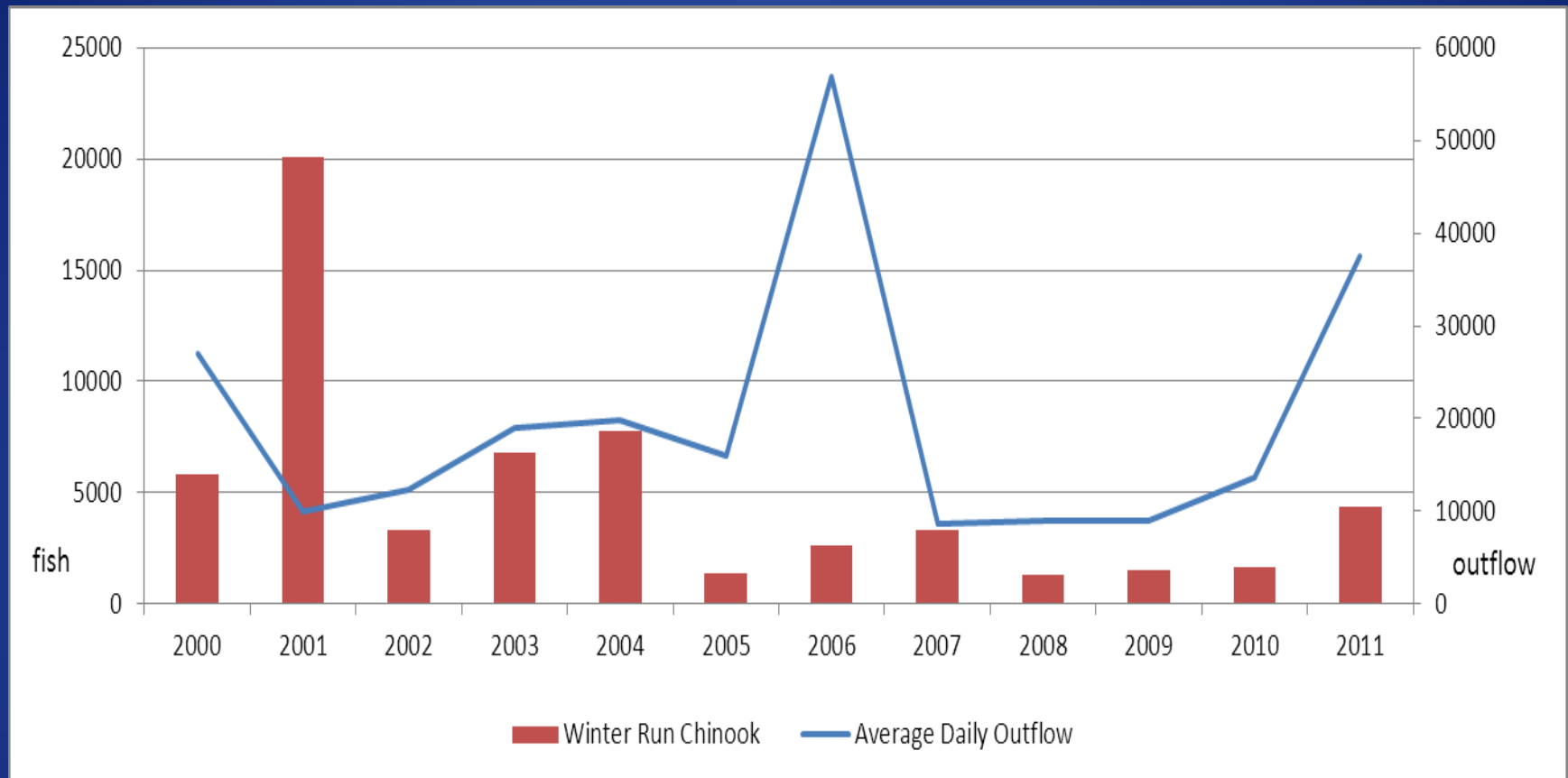
**Winter-run Population Estimate from
Carcass Surveys 1993 - 2011**



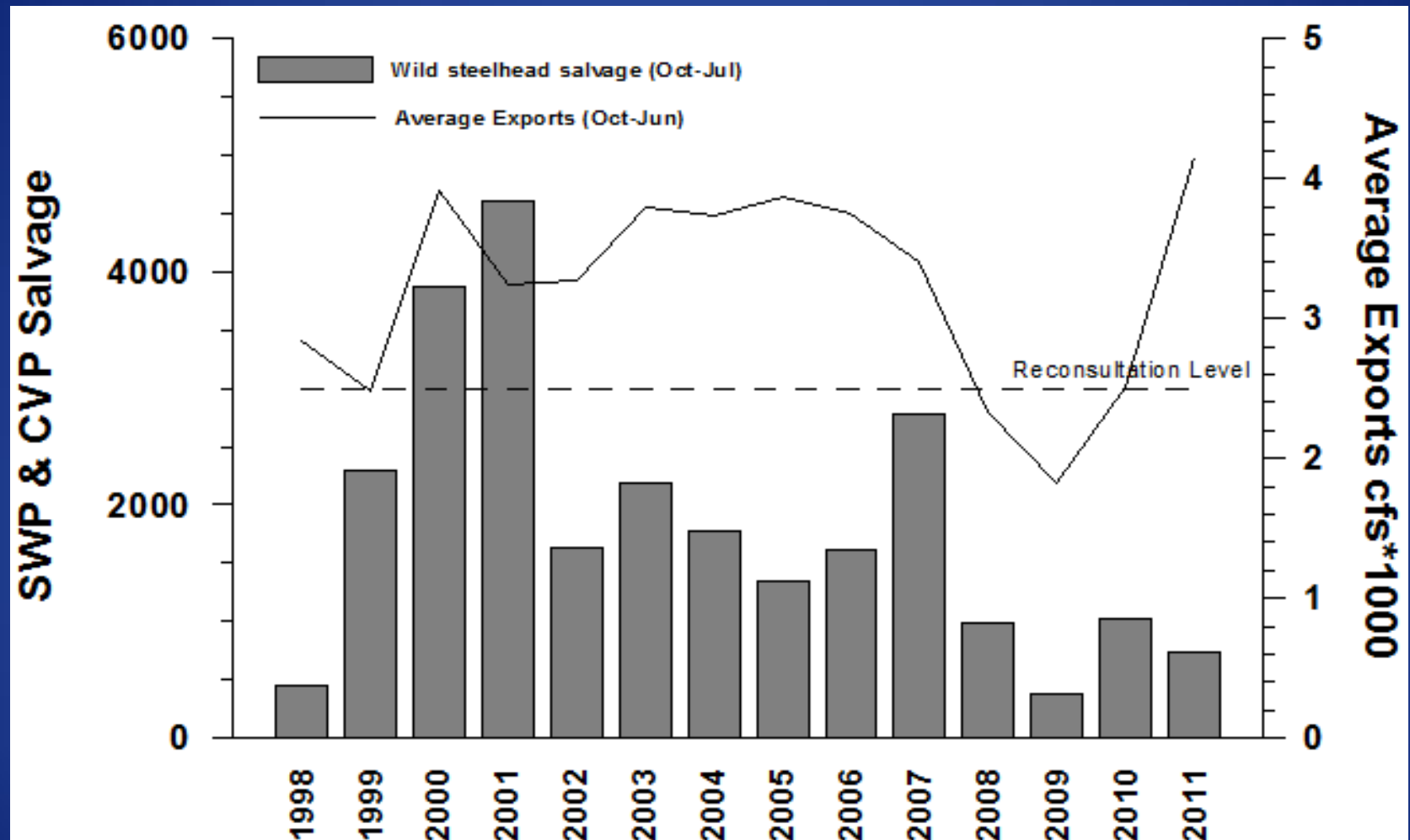
Winter-run loss increased since 2009



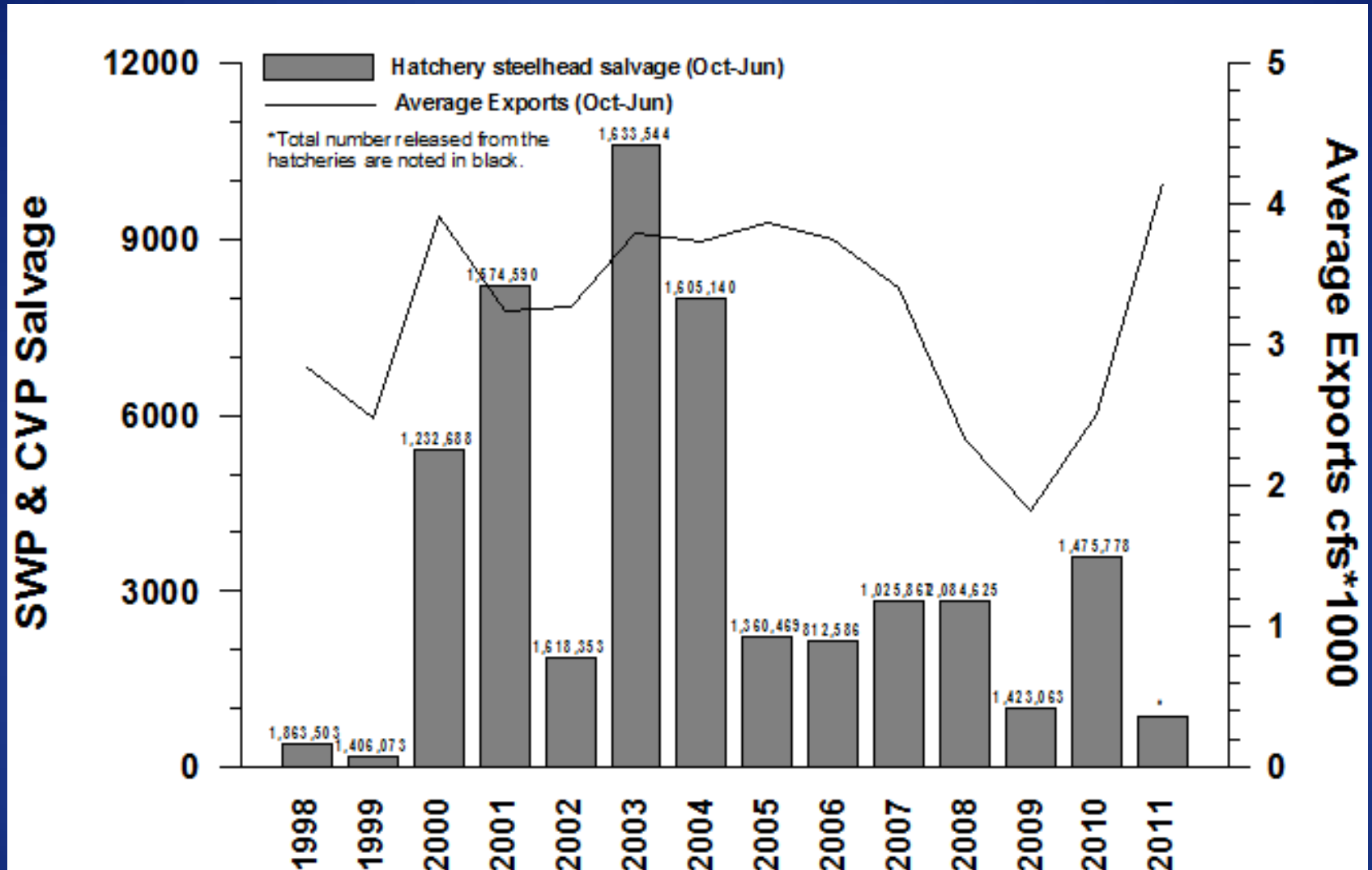
Winter-run loss compared to Delta outflow



Wild steelhead salvage declining, exports increasing



Hatchery steelhead salvage lowest in last 11 years



Green sturgeon problem

- Dramatic increase in juveniles observed in 2011
- WOMT requested DOSS advice
- DOSS subgroup reviewed historical salvage data and assessed current status
- Subgroup advised using a WY based take limit



Results

- Genetic testing showed sturgeon misidentified
- Actual salvage = 14 (2 observed, at 148 and 340 mm)
- revision of sturgeon ID protocols in the works



Other species response



- Delta smelt FMWT index for September and October highest since 2003
- Longfin smelt, American shad, and juvenile striped bass highest FMWT index since 2006
- Indicates conditions in Delta improved
- In part due to RPA actions (positive OMR, and San Joaquin inflow –to-export action)



Successes in 2011

- Interagency coordination (fish agencies and projects)
- Greater fish protection in the Delta
- Increased positive flow cues for outmigration
- Advice given to NMFS and WOMT
- RPA implementation guidance
- Improved real-time data monitoring

Suggestions addressed from 2010 annual review

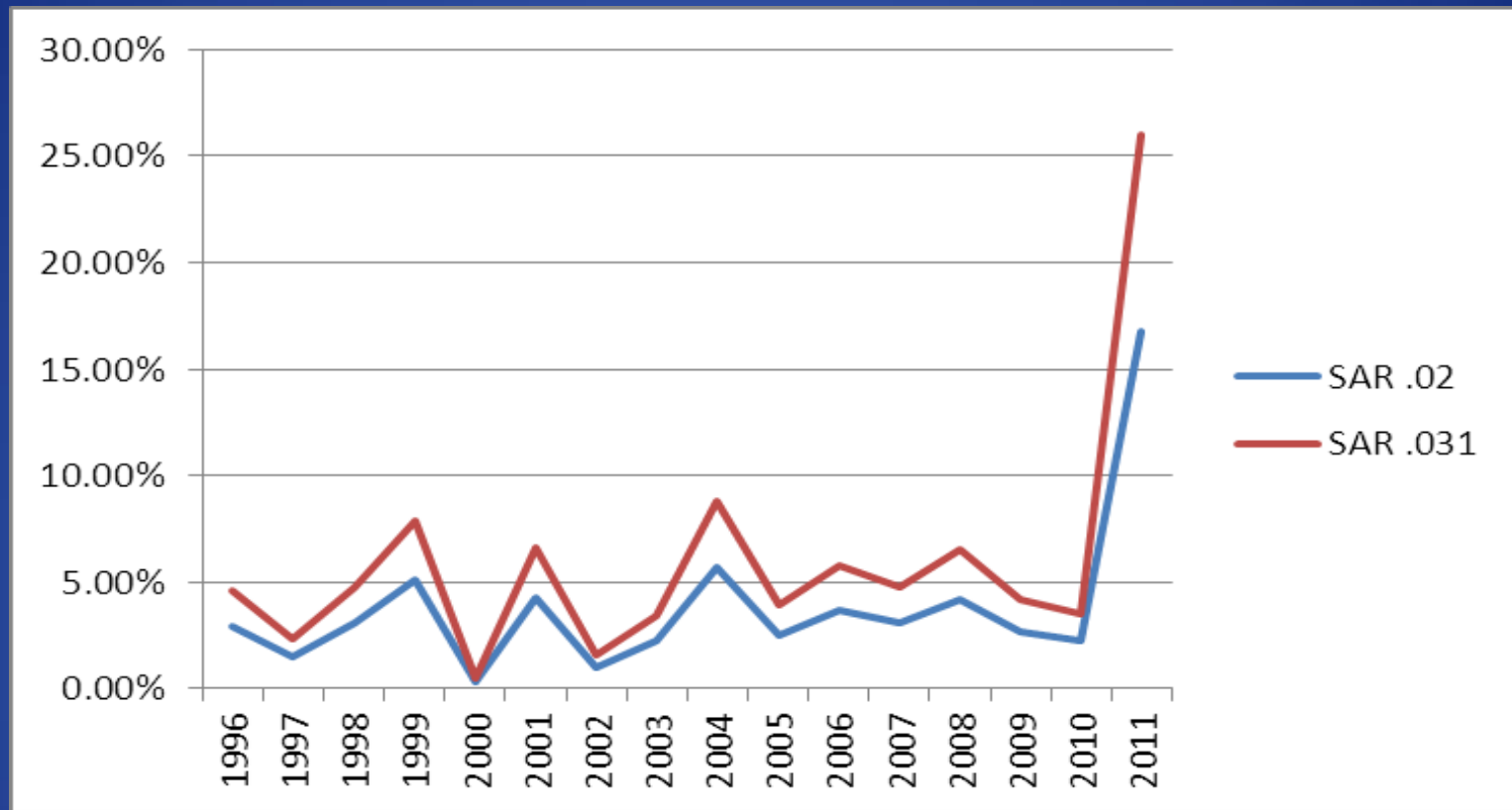
- Established procedures for OMR actions
- Clarified fish density triggers
- Considered OMR formula (Hutton 2008)
- Provided access to salvage and loss data on websites
- Managed responses to OMR and I:E triggers
- Improved real-time response to monitoring

Feedback Requested

- What methods could evaluate effectiveness of RPAs (OMR response, or use of SAR)?
- What monitoring program should be applied to determine population abundance?
- Are there indicators of success that can be inferred from other species (e.g., POD species: delta smelt, longfin smelt, striped bass, American shad)?
- What biological indicators could measure performance of the RPAs?
- What statistical approach could be used to separate out Delta actions from hydrological variations due to flow, tides, DCC gate operations, etc?

Example using SARs: Winter-run loss impact on adult population

Percent of adult population loss



Acknowledgements

- Angela Llaban, DWR, for data
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- DOSS members, for review and comments